

## CLAIMS

What is claimed:

1. A spinal disc nucleus replacement comprising:  
an elastomeric sheath assembled around a rod, a portion of said sheath being arranged for sliding along said rod; and  
a sheath compactor adapted to slide a portion of said sheath along said rod from a first position to a second position, wherein in the first position said sheath is in a non-expanded orientation and in the second position said sheath is in an expanded orientation wherein folds of said sheath expand radially outwards from said rod.
2. The spinal disc nucleus replacement according to claim 1, wherein a stopper is at a distal portion of said rod and said sheath compactor is adapted to push a distal portion of said sheath against said stopper.
3. The spinal disc nucleus replacement according to claim 1, wherein a removable fastening ring holds a portion of said sheath to said rod.
4. The spinal disc nucleus replacement according to claim 1, wherein said rod comprises a removable portion.
5. The spinal disc nucleus replacement according to claim 1, wherein said rod is flexible.
6. The spinal disc nucleus replacement according to claim 5, wherein said rod is flexed into an arcuate shape.
7. The spinal disc nucleus replacement according to claim 1, wherein said rod is constructed of at least one of a shape memory alloy and a shape memory polymer.
8. The spinal disc nucleus replacement according to claim 5, wherein ends of said rod are fastenable together.
9. The spinal disc nucleus replacement according to claim 1, wherein said rod is withdrawable and removable from said sheath.
10. The spinal disc nucleus replacement according to claim 1, wherein said folds of said sheath expand outwards generally uniformly.
11. The spinal disc nucleus replacement according to claim 1, wherein said folds of said sheath expand outwards non-uniformly.
12. The spinal disc nucleus replacement according to claim 1, wherein a distance between folds of said sheath varies axially along said rod.
13. The spinal disc nucleus replacement according to claim 1, wherein there are more folds on one side of said sheath than on another side of said sheath.

14. The spinal disc nucleus replacement according to claim 1, further comprising an anchor for attachment to spinal structure.
15. The spinal disc nucleus replacement according to claim 1, further comprising a guiding wire for introducing said sheath thereover.
16. The spinal disc nucleus replacement according to claim 1, wherein said sheath is constructed of at least one of polyurethane, latex, natural rubber, silicone rubber, nylon, and shape memory polymer.